The 2nd NOAA Workshop on Leveraging AI in Environmental Sciences: Exploiting Space- and Ground-Based Observations and Enhancing Earth System Prediction

Workshop in Slow Motion (WiSM)

July 2020 - February 2021

Via GoToWebinar

All listed times correspond to the US Eastern Time Zone (ET)

Thursday, 30 July 2020

Session 1 (S1): Overview Talks, Part 1
Chairs: Harry Cikanek (NOAA/NESDIS, STAR Director)

1:00 PM - 1:05 PM	- Information on the 2nd NOAA AI Workshop: Logistics, Timeline and Structure *Kevin Garrett (NOAA/NESDIS/STAR, Local Organizing Committee)*
1:05 PM - 1:15 PM	- Welcoming remarks and introduction of keynote speakers *Harry Cikanek (NOAA/NESDIS, STAR Director)*
1:15 PM - 1:25 PM	- Keynote Address, NOAA AI: Realizing Transformational Advances in Mission Performance and Our Culture of Innovation *RADM Timothy Gallaudet (NOAA, Deputy NOAA Administrator)*
1:25 PM - 1:35 PM	- Keynote Address *Stephen Volz (NOAA, NESDIS Assistant Administrator)*
1:35 PM - 1:45 PM	- Keynote Address *Nicole LeBoeuf (NOAA, NOS Acting Assistant Administrator)*
1:45 PM - 2:00 PM	- NOAA AI Implementation Plan *Bill Michaels (NOAA, NMFS)*
2:00 PM - 2:20 PM	- Efforts in NOAA to Leverage Modern AI techniques for Satellite Data Exploitation and NWP *Sid Boukabara (NOAA/NESDIS, STAR Principal Scientist)*
2:20 PM - 2:40 PM	- Machine Learning at ECMWF *Peter Dueben (ECMWF)*
2:40 PM - 3:15 PM	- **Panel Discussion (facilitated by H. Cikanek)** *Panelists: Dr. Stephen Volz, Dr. Jamese Sims, Nicole LeBoeuf, Bill Michaels*

Thursday, 6 August 2020

Session 2 (S2): Fundamentals of AI, Part 1
Chairs: Dave Turner (NOAA. ESRL), Jebb Stewart (NOAA, ESRL)

12:00 PM - 12:35 PM	- Data Science and Machine Learning at the UK Met Office *Samantha Adams (UKMO)*
12:35 PM - 12:55 PM	- Recent Machine Learning Research at NCAR *Sue Ellen Haupt (NCAR)*
12:55 PM - 1:20 PM	- Data-driven (super-) parametrization using deep learning: Experimentation with a multi-scale Lorenz 96 system and transfer learning *Ashesh Chattopadhyay (Rice U.)*
1:20 PM - 1:45 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Thursday, 13 August 2020

Session 3 (S3): Looking Ahead (Using AI for NOAA mission), Part 1
Chairs: Bill Michaels (NOAA, NMFS), John Ten Hoeve (Office of Organizational Excellence)

12:00 PM - 12:30 PM	- NOAA Center for AI (NCAI) Introduction *Bill Michaels (AI S&T Chair), Mary Wohlgemuth (NCEI Director), Eric Kihn (NCEI CCOG Director), Rob Redmon (NCAI LCDP Acting Lead)*
12:30 PM - 1:00 PM	- NCAI Community of Practice (CoMP) *Eric Kihn (NCEI CCOG Director), Rob Redmon (NCAI LCDP Acting Lead)*
1:00 PM - 1:30 PM	- NCAI CoMP Capabilities Discussion

Thursday, 20 August 2020

Session 4 (S4): AI/ML for Post-Processing and Data dissemination, Part 1
Chairs: Greg Dusek (NOAA/NOS), Andre van der Westhuysen (IMSG at NWS/NCEP/EMC)

12:00 PM - 12:40 PM	- Artificial Intelligence for Advanced Earth Science Information Systems *Jacqueline Le Moigne (NASA)*

12:40 PM - 1:10 PM	- Using Random Forests to Create Probabilistic Next-Day Severe Weather Guidance from NWP Ensembles *Eric Loken (OU CIMMS/OU)*
1:10 PM - 1:40 PM	- Modeling Clouds From Sub-grid to Global Scales with Deep Generative Models *Tianle Yuan (NASA GSFC/UMBC JCET)*
1:40 PM - 2:00 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Thursday, 27 August 2020

Session 5 (S5): AI/ML for Environmental Data, Image, and Signal Processing, Part 1
Chairs: Imme Ebert-Uphoff (CIRA), Ryan Lagerquist (CIRA/NOAA-GSD)

12:00 PM - 12:40 PM	- Combining data assimilation and machine learning for weather forecasting *Alan Geer (ECMWF)*
1240 PM - 1:00 PM	- Viewing Climate Signals through an AI Lens *Elizabeth Barnes (CSU)*
1:00 PM - 1:20 PM	- Video and Image Analytics for Marine Environments (VIAME), a Do-it-yourself AI Toolkit *Matthew Dawkins (Kitware Inc)*
1:20 PM - 1:40 PM	- Generating High Temporal and Spatial Microwave Hurricane Image Products Using Artificial intelligence and Machine Learning Technique *Likun Wang (RTi at NESDIS/STAR)*
1:40 PM - 2:00 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Thursday, 3 September 2020

Session 6 (S6): AI/ML for Information Extraction from Data, Part 1
Chairs: Philippe Tissot (Texas A&M University, Corpus Christi), Jebb Stewart (NOAA, ESRL)

1:00 PM - 1:20 PM	- AI Quality Control of NOAA Tide Gauge Observations *Gregory Dusek (NOAA/NOS)*
1:20 PM - 1:40 PM	- Artificial Intelligence and Deep Machine learning for Passive Acoustic Monitoring at NOAA Fisheries *Ann Allen, Manuel Castellote, Shannon Rankin (NOAA/NMFS/PIFSC, NOAA/NMFS/AFSC, NOAA/NMFS/SWFSC)*
1:40 PM - 2:00 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Thursday, 10 September 2020

Session 7 (S7): Fundamentals of AI, Part 2
Chairs: Amy McGovern (OU), David Hall (NVIDIA)

12:00 PM - 12:25 PM	- Trustworthy AI for High Impact Weather Prediction *Amy McGovern (OU)*
12:25 PM - 12:50 PM	- Data Assimilation and Machine Learning Science at ECMWF *Massimo Bonavita (ECMWF)*
12:50 PM - 1:15 PM	- Ensemble Oscillation Correction (EnOC): Leveraging oscillatory modes to improve forecasts of chaotic systems *Eviatar Bach (UMD)*
1:15 PM - 1:40 PM	- Cost Sensitive Loss Function for Machine Learning *Richard Berk (U. Penn)*
1:40 PM - 2:00 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Thursday, 17 September 2020

Session 8 (S8): Machine Learning Tools and Best Practices, Part 1
Chairs: Sue Haupt (NCAR), Jason Hickey (Google)

12:00 PM - 12:25 PM	- Which strategies did my neural network learn? *Imme Ebert-Uphoff (CIRA)*
12:25 PM - 12:50 PM	- ClimateNet: an expert-labelled open dataset and Deep Learning architecture for enabling high-precision analyses of extreme weather *Karthik Kashinath (Lawrence Berkeley National Lab)*
12:50 PM - 1:15 PM	- The AI for Earth System Science Hackathon: Challenge Problems and Lessons Learned *David Gagne (NCAR)*
1:15 PM - 1:40 PM	- "AI for Science" program at Argonne NL *Ian Foster (ORNL)*
1:40 PM - 2:00 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Tuesday, 22 September 2020

Session 9 (S9): Tutorial 1

12:00 PM - 2:00 PM	- Tutorial on Video and Image Analytics for Marine Environments (VIAME), a Do-It-Yourself AI Toolkit *Matthew Dawkins (Kitware), Anthony Hoogs (Kitware)*

Thursday, 24 September 2020

Session 10 (S10): AI/ML for Post-Processing and Data dissemination, Part 2
Chairs: Nikunj Oza (NASA), Allen Huang (UW-Madison)

12:00 PM - 12:20 PM	- The role of machine learning in a seamless modeling approach from weather to climate time scales *V. Balaji (NOAA/GFDL)*
12:20 PM - 12:40 PM	- Elucidating Ecological Complexity: Unsupervised Learning determines global marine eco-provinces *Maike Sonnewald (NOAA/GFDL)*

12:40 PM - 1:00 PM	- Accelerating Google's Flood Forecasting Initiative with Tensor Processing Units *Vova Anisimov, Anudhyan Boral, Lily Hu, Sella Nevo, Damien Pierce, Yusef Shafi (Google Research)*
1:00 PM - 1:20 PM	- Predicting global cloud ceiling values with machine learning *Mihai Alexe (Spire Global)*
1:20 PM - 1:45 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Tuesday, 29 September 2020

Session 11 (S11): Poster Session I
Chairs: Kevin Garrett (NOAA/NESDIS/STAR)

12:00 PM - 2:00 PM	- Modelling runoff from green roofs using Deep Neural Networks *Elhadi Abdalla (NTNU)* - Fine-Delineated Tropical Cyclone Detection from Geostationary Satellites and IBTrACS data using Advanced Neural Networks *Ata Akbari Asanjan (Universities Space Research Association)* - Pixel-wise Deep Sequence learning for wildfire spread prediction in Alberta, Canada *Xinli Cai (University of Alberta)* - Using deep super-resolution for high resolution precipitation images *Xinli Cai (University of Alberta)* - Lightning prediction in the Atlantic offshore region *John Cintineo (University of Wisconsin -- Madison)* - Connecting ocean physical and biogeochemical properties with the spatial distribution of mesopelagic fish abundance *Donglai Gong (Virginia Institute of Marine Science - William & Mary)* - Using Data Mining Decision Tree Method to Identify the Optimal Fire Detection Thresholds *Yingxin Gu (IMSG at NOAA/NESDIS/STAR)* - Application of Advanced Deep Learning Algorithms in Precipitation Estimation from Multiple Sources of Information *Negin Hayatbini (University of California, Irvine)* - Low Cloud Detection for the GOES ABI using a Random Forest Classifier *John Haynes (CIRA / Colorado State University)* - 3D Convolutional Deep Learning for Coastal Fog Predictions *Hamid Kamangir (Texas A&M University-Corpus Christi)* -

- Verification of a Machine Learning Algorithm in the Prediction of Flash Flooding
  Mark Klein (NWS/Weather Prediction Center)
- Utilizing CNN's to produce Quantitative Precipitation Estimates
  Micheal Simpson (University of Oklahoma)
- Refining aerosol optical depth retrievals over land by constructing the relationship of spectral surface reflectances through deep learning: application to Himawari-8
  Tianning Su (UMD)

Thursday, 1 October 2020

Session 12 (S12): AI/ML for Models Parameterization, Emulation, and Hybrid Model/AI Construct, Part 1
Chairs: Vladimir Krasnopolsky (NOAA/NCEP/EMC), Kayo Ide (UMD)

12:00 PM - 12:30 PM	- First steps toward a machine-learning based moist physics parameterization by coarse-graining *Jeremy McGibbon (Vulcan)*
12:30 PM - 12:50 PM	- Operational In-Field Forecasting using Online Sequential Extreme Learning Machines *Carlos Gaitan (Benchmark Labs)*
12:50 PM - 1:10 PM	- Representing Aerosol-Cloud Interactions Using Machine Learning Techniques in Energy Exascale Earth System Model *Po-Lun Ma (PNNL)*
1:10 PM - 1:30 PM	- Robustness of NN Emulations of Radiative Transfer Parameterizations in a State-of-the-Art GCM *Alex Belochitski (IMSG at NOAA/NCEP/EMC)*
1:30 PM - 2:00 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Week of Monday, 5 October 2020

WEEK OF ECMWF WORKSHOP

Thursday, 15 October 2020

Session 13 (S13): AI/ML for Data Fusion/Assimilation, Part 1
Chairs: Peter Jan van Leeuwen (CSU), Steve Penny (NOAA PSD/CIRES)

12:00 PM - 12:20 PM	- Overview of AI activities at IBM Weather *John Williams (IBM Weather)*

12:20 PM - 12:40 PM	- Overview of AI activities at Google *Jason Hickey (Google)*
12:40 PM - 1:00 PM	- Integrating AI/ML with Data Assimilation for Prediction Applications at NOAA *Stephen Penny (NOAA PSD/CIRES)*
1:00 PM - 1:20 PM	- Automated Analysis of Satellite Imagery in Support of Severe Weather Nowcasting *Michael Pavolonis (NOAA/NESDIS/STAR)*
1:20 PM - 1:40 PM	- Keynote Address, Dr Neil Jacobs (NOAA Administrator)
1:40 PM - 2:00 PM	- **Panel Discussion** *Facilitator: Harry Cikanek, STAR* *Panelists: Session Chairs & Speakers*

Tuesday, 20 October 2020

Session 14 (S14): Tutorial 2

12:00 PM - 2:00 PM	- Learning the Fundamentals of Machine Learning through Forecasting El Niño *Karthik Kashinath, Ankur Mahesh (LBL, ClimateAI)*

Thursday, 22 October 2020

Session 15 (S15): AI for Innovation: New Ways to Exploit Environmental Data, Part 1
Chairs:Christina Kumler (CIRES/NOAA/GSL), Jeremy McGibbon (Vulcan)

12:00 PM - 12:25 PM	- Neural Networks for Postprocessing Ensemble Weather Forecasts *Sebastian Lerch (KIT)*
12:25 PM - 12:45 PM	- What is "AI-Ready" Open Data? *Tyler Christensen (NOAA/NOS/IMO)*
12:45 PM - 1:05 PM	- Precipitation typology with GOES-R observations using insights from the Multi-Radar / Multi-Sensor (MRMS) system *Shruti A. Upadhyaya (CIMMS)*
1:05 PM - 1:25 PM	- Improving Passive Acoustic Monitoring Applications to the Endangered Cook Inlet Beluga Whale *Ming Zhong (Microsoft)*
1:25 PM - 1:45 PM	- Leveraging NWP for Operational Machine Learning Predictions for Coastal and Environmental Stakeholders *Philippe Tissot (Texas A&M University, Corpus Christi)*
1:45 PM - 2:00 PM	

	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Thursday, 29 October 2020

Session 16 (S16): AI/ML for Post-Processing and Data dissemination, Part 3
Chairs: John K. Williams (The Weather Company, an IBM Business), Maike Sonnewald (NOAA/GFDL)

12:00 PM - 12:25 PM	- AI and Clouds at Microsoft *Laura Dobbs (Microsoft)*
12:25 PM - 12:50 PM	- Improving CFS Precipitation and 2m Temperature Anomaly Outlooks from Week-1 to Week-6 with Machine Learning *Yun Fan (NCEP/CPC)*
12:50 PM - 1:15 PM	- Shifting to AI for Passive Acoustic Monitoring of the Endangered Cook Inlet Beluga Whale *Manuel Castellote (NOAA AFSC and UW)*
1:15 PM - 1:40 PM	- Machine Learning Based Whether Precipitation Prediction with NWP model *Se-Young Yun (KAIST)*
1:40 PM - 2:00 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Thursday, 5 November 2020

Session 17 (S17): AI/ML for Post-Processing and Data dissemination, Part 4
Chairs:

12:00 PM - 12:40 PM	- NIMS R&D strategy for Alpha Weather *Hyesook Lee (KMA)*
12:40 PM - 1:00 PM	- Predicting Algal Bloom Toxicity in Lake Erie: Lessons From Machine Learning *Theodore A.D. Slawecki (LimnoTech)*
1:00 PM - 1:30 PM	- Applying satellite observations of tropical cyclone internal structures to rapid intensification forecast with machine learning *Hui Su (JPL/Caltech)*
1:30 PM - 2:00 PM	- **Panel Discussion.** *Panelists: Session Chairs & Speakers*

Tuesday, 10 November 2020

Session 18 (S18): Tutorial 3

12:00 PM - 2:00 PM	- A Practical Introduction to Deep Learning. Detecting strong storms on the Earth and Sun. *David Hall (NVIDIA)*

Thursday, 12 November 2020

Session 19 (S19): AI/ML for Environmental Data, Image, and Signal Processing, Part 2
Chairs:

12:00 PM - 12:30 PM	- Machine learning for detection of climate extremes: New approaches to uncertainty quantification. *William Collins (LBNL, UC Berkeley)*
12:30 PM - 1:00 PM	- Analysis of Multispectral Land Surface Reflectance Time-Series for Detecting and Classifying Land Cover Change *Srija Chakraborty (NASA GSFC/ USRA)*
1:00 PM - 1:30 PM	- Super-Resolution of VIIRS-Measured Ocean Color Products Using Deep Convolutional Neural Network *Xiaoming Liu (NOAA/NESDIS/STAR)*
1:30 PM - 1:50 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Thursday, 19 November 2020

Session 20 (S20): Looking Ahead (Using AI for NOAA mission), Part 2
Chairs:

12:00 PM - 12:30 PM	- Exploring the Frontiers of Deep Learning for Earth and Space *David Hall (NVIDIA)*
12:30 PM - 12:50 PM	- Accelerating biodiversity surveys with computer vision: successes and challenges *Dan Morris (Microsoft AI for Earth)*
12:50 PM - 1:10 PM	- Counting Belugas from Space: Can we use very high resolution satellite imagery to accurately assess the critically endangered beluga whale population in Cook Inlet, Alaska? *Kimberly Goetz (NOAA/NMFS/AFSC/MML)*
1:10 PM - 1:30 PM	- Tackling challenges of Ocean Exploration with Machine Learning and Artificial Intelligence *Matt Dornback (NOAA/OAR/OER)*
1:30 PM - 2:00 PM	

	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Week of Monday, 23 November 2020

WEEK OF THANKSGIVING (USA)

Tuesday, 1 December 2020

Session 21 (S21): Tutorial 4

12:00 PM - 2:00 PM	- Traditional Machine Learning Pipeline Applied to Storm-Scale Ensemble Data *Amanda Burke (OU)*

Thursday, 3 December 2020

Session 22 (S22): AI/ML for Models Parameterization, Emulation, and Hybrid Model/AI Construct, Part 2
Chairs:

12:00 PM - 12:30 PM	- Using Neural Networks as Model Physics Components in Numerical Weather Prediction *Vladimir Krasnopolsky (NOAA/NCEP/EMC)*
12:30 PM - 12:50 PM	- Challenges associated with training a machine-learning based moist physics parameterization by coarse-graining in a model with topography *Spencer Clark (Vulcan, Inc./NOAA GFDL)*
12:50 PM - 1:10 PM	- Exploring Various Machine Learning Techniques for Emulating Simplified Physical Parameterizations in the Community Atmosphere Model *Garrett Limon (University of Michigan)*
1:10 PM - 1:30 PM	- Stable machine-learning parameterization of subgrid processes for climate modeling at a range of resolutions *Janni Yuval (MIT)*
1:30 PM - 2:00 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Week of Monday, 7 December 2020

WEEK OF AGU

Tuesday, 15 December 2020

Session 23 (S23): Poster Session II
Chairs:

12:00 PM - 2:00 PM

- Cloud classification with unsupervised deep learning
  Takuya Kurihana (University of Chicago)
- Statistical-Dynamical Forecasting of North Atlantic Tropical Cyclone Activity on the Subseasonal Time Scales
  Michael Maier-Gerber (Karlsruhe Institute of Technology (KIT))
- Using a Multi-Layer Perceptron in Nearshore Wave Prediction
  Sai Manchikalapati (TJHSST)
- Unlocking GOES: A Statistical Framework for Quantifying the Evolution of Convective Structure in Tropical Cyclones
  Trey McNeely (Carnegie Mellon University)
- Convection Classification in a Future Climate: What did Deep Learning Really Learn?
  Maria Molina (National Center for Atmospheric Research)
- MLOps platforms to address the complexities of delivering a ML/AI product
  Pamela Perez (GAMA-1 Technologies)
- Preparing for the Future: Development of an Open-Source Workflow for AI driven Acoustic Data Analysis
  Shannon Rankin (Southwest Fisheries Science Center, NMFS)
- Addressing AMV height assignment with Deep Learning
  Thomas Rink (SSEC/CIMSS)
- Use of and Ideas for Artificial Intelligence at the Naval Research Laboratory for Environmental Applications
  Benjamin Ruston (U.S. Naval Research Laboratory)
- Estimation of sea ice concentration in the marginal ice zone using a fully convolutional neural network
  Andrea Scott (University of Waterloo)
- Development of machine learning based downscaling methods for wildfire risk
  Rackhun Son (Gwangju Institute of Science and Technology)
- Harness the Power of Artificial intelligence and -Omics to Identify Soil Microbial Functions in Climate Change Projection
  Yang Song (University of Arizona)

- Short-Term Solar Radiation Forecast using Total Sky-Imager via Transfer Learning
  Marouane Temimi (Khalifa University)
- Combining spatio-temporal weather and crop data for network-based inference on the international wheat trade
  Srishti Vishwakarma (University of Maryland Center for Environmental Science Appalachian Laboratory)
- Online bias correction of weather models using machine learning
  Oliver Watt-Meyer (Vulcan, Inc.)
- Automatic Extraction of Internal Wave Signature from Multiple Satellite Sensors based on Deep Convolutional Neural Networks
  Shuangshang Zhang (University of Maryland Eastern Shore)
- Towards Seasonal Forecasting of Fire Weather Using Neural Networks
  Jessica Zerb (University of Alberta)
- AI in the US Inland Waterways industry
  David Sathiaraj (Trabus Technologies)
- Engaging Freshmen Undergraduates in AI on Cloud Imagery and Model Output
  Alexandra Jones (UMD)

Thursday, 17 December 2020

Session 24 (S24): AI/ML for Environmental Data, Image, and Signal Processing, Part 3
Chairs:

12:00 PM - 12:20 PM	- A Deep Learning Approach for Intelligent Thinning of Satellite Data *Sarvesh Garimella (ACME AtronOmatic)*
12:20 PM - 12:40 PM	- Automation-assisted segmentation to expedite 3D coral mapping *Hugh Runyan (SIO/UCSD)*
12:40 PM - 1:00 PM	- A Storm Event Imagery Dataset for Deep Learning Applications in Radar and Satellite Meteorology *Mark Veillette (MIT Lincoln Laboratory)*
1:00 PM - 1:20 PM	- Precipitation downscaling using conditional super-resolution based deep neural network. *Jiali Wang (Argonne National Laboratory)*
1:20 PM - 1:50 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Week of Monday, 21 December 2020

WINTER HOLIDAYS WEEK

Week of Monday, 28 December 2020

WEEK OF NEW YEAR'S

Thursday, 7 January 2021

Session 25 (S25): AI/ML for Data Fusion/Assimilation, Part 2
Chairs:

12:00 PM - 12:20 PM	- Using Deep Learning to Generate Synthetic Radar Fields from GOES ABI and GLM *Kyle Hilburn (CIRA/CSU)*
12:20 PM - 12:50 PM	- Deep Multi-Sensor Domain Adaptation on Active and Passive Satellite Remote Sensing Data *Sanjay Purushotham (UMBC)*
12:50 PM - 1:10 PM	- A satellite-station blended daily surface air temperature dataset for the Tibetan Plateau *Yuhan (Douglas) Rao (CISESS/NCICS/NCSU)*
1:10 PM - 1:40 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Week of Monday, 11 January 2021

WEEK OF AMS

Thursday, 21 January 2021

Session 26 (S26): AI/ML for Information Extraction from Data, Part 2
Chairs:

12:00 PM - 12:20 PM	- Retrieving Chlorophyll concentration from GOES-16 ABI using Deep Learning Techniques *Guangming Zheng (NOAA/NESDIS/STAR)*
12:20 PM - 12:40 PM	- Kick: Shift-N-Overlap Cascades of Transposed Convolutional Layer for Better Autoencoding Reconstruction on Remote Sensing Imagery

	Seungkyun Hong (Korea Institute of Science and Technology Information)
12:40 PM - 1:00 PM	- Intra-day Forecast of Ground Horizontal Irradiance Using Long Short-Term Memory Network (LSTM) *Xianglei Huang (University of Michigan at Ann Arbor)*
1:00 PM - 1:20 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Thursday, 28 January 2021

Session 27 (S27): AI/ML for Information Extraction from Data, Part 3
Chairs:

12:00 PM - 12:20 PM	- Deriving Fire Radiative Power from Numerical Weather Models and Satellites using Machine Learning Methods *Christina Kumler (CIRES/NOAA/GSL)*
12:20 PM - 12:40 PM	- Convolutional Neural Networks for Hydrometeor Classification using Dual Polarization Doppler Radars *Jitendra Kumar (Oak Ridge National Laboratory)*
12:40 PM - 1:00 PM	- Effects of Balancing Dataset on Support Vector Machine Performance for Tropical Cyclone Intensity Predictions *Mu-Chieh Ko (NOAA/AOML/HRD)*
1:00 PM - 1:20 PM	- What can we learn from Random Forest in the context of the tropical cyclone rapid intensification problem? *Chris Slocum (NOAA/NESDIS/STAR)*
1:20 PM - 1:50 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Thursday, 4 February 2021

Session 28 (S28): Machine Learning Tools and Best Practices, Part 2
Chairs:

12:00 PM - 12:20 PM	
12:20 PM - 12:40 PM	- Cloud Cover Nowcasts from Process-Based Statistical Models *Chuyen Nguyen (Naval Research Laboratory)*
12:40 PM - 1:00 PM	- Radiant MLHub: Advancing Utilization of AI Applications on Earth Observations with Benchmark Training Datasets *Anne Hale Miglarese (Radiant Earth Foundation)*

1:00 PM - 1:30 PM	- Toward the Creation of Widely Applicable Multi-Step Machine Learning Forecasting: An Investigation into ML Modeling Strategies *Daniel Vassallo (University of Notre Dame)* - **Panel Discussion** *Panelists: Session Chairs & Speakers*

Thursday, 11 February 2021

Session 29 (S29): AI/ML for Environmental Data, Image, and Signal Processing, Part 4
Chairs:

12:00 PM - 12:20 PM	- Automation-assisted segmentation to expedite 3D coral mapping *Hugh Runyan (SIO/UCSD)*
12:20 PM - 12:40 PM	- Machine Learning for Earth Science Data Systems *Manil Maskey (NASA)*
12:40 PM - 1:00 PM	- CoralNet: AI for Automatic Annotation of Benthic Imagery *David Kriegman (UCSD)*
1:00 PM - 1:20 PM	- How NOAA Fisheries Leveraged Competitions and Collaboration to Automate the Identification of Right Whales using Deep Learning *Christin Khan (NOAA/NMFS/NEFSC/READ/PSB)*
1:20 PM - 1:40 PM	- Radar Reflectivity Surface Rainfall Retrieval with cGAN Algorithm: An Idealized Study *Shujia Zhou (NASA GSFC)*
1:40 PM - 2:00 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Thursday, 18 February 2021

Session 30 (S30): AI/ML for Environmental Data, Image, and Signal Processing, Part 5
Chairs:

12:00 PM - 12:20 PM	- Mapping Arctic Vegetation using Hyperspectral Airborne Remote Sensing Data *Forrest M. Hoffman (Oak Ridge National Laboratory)*
12:20 PM - 12:40 PM	- RU-net for precipitation retrieval from passive microwave observations *Yeji Choi (SI Ananlytics)*
12:40 PM - 1:00 PM	- A spatiotemporal quantification of the relative importance of indicator inputs for drought estimation *Soni Yatheendradas (UMD/ESSIC & NASA/GSFC)*

1:00 PM - 1:20 PM	- Development of a Machine Learning-Based Radiometric Bias Correction for NOAA's Microwave Integrated Retrieval System (MiRS) *Yan Zhou (UMD/ESSIC/CISESS)*
1:20 PM - 1:40 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

Thursday, 25 February 2021

Session 31 (S31): AI for Innovation: New Ways to Exploit Environmental Data, Part 2
Chairs:

12:00 PM - 12:20 PM	- Energy efficiency and security aspects of Smart Homes *Olivera Kotevska (Oak Ridge National Laboratory)*
12:20 PM - 12:40 PM	- Conditional Generative Adversarial Networks (cGANs) for Precipitation Estimation and Forecast from Multiple sources of information *Negin Hayatbini (Scripps/CW3E/UCSD)*
12:40 PM - 1:00 PM	- Benefits of modeling interdependent environmental variables, streamflow and stream temperature, with deep learning *Jeffrey Sadler (USGS)*
1:00 PM - 1:30 PM	- **Panel Discussion** *Panelists: Session Chairs & Speakers*

MEETING ADJOURNS

Tutorials To Be Scheduled

- Enabling faster species identification in underwater cameras through AI
  Anusua Trivedi (Microsoft)

- TBA
  Kevin Jorissen (AWS)